Gurit

shape

The Gurit Magazine
Issue 11, August 2012

Prepregs catch the bus
Aston Martin's new hero
Quintessential sailing
Building the world's biggest tidal turbine blades
A fresh look at prepregs

Dear Reader

Gurit has achieved sound double-digit sales growth and solid earnings in the first half of 2012 compared with the same prior-year period. I am happy to take this opportunity to thank all our business partners and employees for their continued trust, their efforts and commitment. At the same time, we are aware that the market environment remains challenging. While Gurit serves various end markets with engineering, materials, tooling and finished parts as you can again discover by the wide scope of topics covered in this edition of SHAPE, Wind Energy alone represents over two thirds of our business. The global wind energy market faces various uncertainties, including an increasing level of demand volatility, and is thus under rising competitive pressure. While we understand that these turbulences will carry on and impact customers, suppliers and us short-term, we focus on the longer term and consider the opportunities of the wind energy market to be intact and positive.

How are we mastering these challenges? Our full-line offering covers the needs of the entire global value chain, our technical competence and the flexibility of our factories underpin our competitiveness. Most importantly, however, it is Gurit's dedicated and motivated teams intimately working with the customers who make the biggest difference. We want to enhance this strong point which we attained through dedication and hard work. People are one of Gurit's key assets, as you will also discover reading the articles and interviews in this magazine.

We have good reasons to view our business opportunities positively. In June, we saw that we have the right strategies in place for the longer term. The Board of Directors and the senior Management team of Gurit met in Switzerland to assess and review where we stand. It was an open, direct and to-the-point dialogue and we all learnt what we do well and what we can improve. This open and straight-forward corporate culture is another important asset for Gurit as it paves the path to continuously strive for the best.

Yours sincerely
Rudolf Hadorn CEO

Contents

Imprint Gurit Holding AG, Group Communications

Editor in Chief Bernhard Schweizer

Thank you for your feedback at SHAPE@gurit.com

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Concept and Design Gurit Group Communication and Eclat AG, Erlenbach

CERTIFIED GURIT QUALITY

Gurit is committed to ensuring that all our products and services deliver quality to the customers, meeting their needs and demonstrating our commitment to customer satisfaction. Red Maple, the Tooling Business of Gurit, and Gurit (Canada) are proud to add new quality certifications to our comprehensive list.

In Spring 2012, Red Maple was re-assessed and certified as meeting the requirements of ISO 9001:2008. This quality management standard forms the basis for the continuous improvement of the operational and organisational structure of a company. Hill Zhao, Selina Ji and Xu Feifei were in charge of all the preparatory work. «Three years ago our quality management system was assessed and certified by Germanischer Lloyd; this time the audit was made by SGS,» explains Hill Zhao. «As an ISO-9000-qualified company, all our operation processes were assessed along the whole process and production flow, from customer contract review, raw material buy in, incoming quality inspection, process control, outgoing checking, to customer service, etc.»

In June, Red Maple was also awarded the CE certification for its range of moulds for wind turbine blades from 1MW to 5MW. It was again Hill Zhao together with Lu Jianlin and Selina Ji who prepared this certification process internally. «The CE certification is very important for our European customers,» says Hill. The Audit was made by Italian Ente Certificazione Macchine.

GL-accreditation for the laboratories of Gurit (Canada)
Gurit (Canada) is pleased to announce that the laboratory has received its Germanischer Lloyd (GL) accreditation. This GL-accreditation certifies the technical competence in the field of mechanical and analytical testing. The scope of this certification covers specific tests and testing procedures on non-metallic materials. «This certification became necessary due to the more important demand from the customers. It significantly increases the credibility of our laboratory,» says Eric Lalancette, Laboratory manager, far left in the picture together with the whole lab team who has put in place the required system and now oversees it to ensure the conformity with the GL rules.

GURIT BALSA NOW ALSO AVAILABLE THROUGH SINO COMPOSITE

On May 8, 2012, Gurit and Sino Composite signed a long-term supply agreement for Balsaflex®, Gurit's balsa core materials, for the Chinese market.

Established in 1992, Sino-Composite Co. Ltd, Beijing, is a leading provider of composite materials and core material kits for the wind energy industry and other composite application markets in China. Zhang Sicheng, CEO of Sino Composite, said at the signing ceremony held in Beijing: «The new agreement provides Sino Composite with a strong and stable source of high-quality balsa core materials.»

The products will be manufactured and supplied by Balseurop, Gurit's successful Balsa wood specialists. «In addition to Gurit's existing distributor network and direct customer contacts in China, the new contract with Sino Composite represents a great opportunity for Gurit to more rapidly penetrate the Chinese composite market through Sino Composite's large and well-established customer base,» commented Rudolf Hadorn, CEO of Gurit.

HAS GURIT (TIANJIN) MOVED TO A SEA VIEW?

Heavy rains in Tianjin reached 345 mm on July 25, which was unprecedented in the last 60 years. «The rain gave us the ‹sea› as a gift. Although the ‹sea› put many obstacles in our way professionally, all employees continued to work,» said Christina Yin, HR Manager at Gurit (Tianjin). They took an optimistic and humoristic view of the situation: Some employees said it was a unique opportunity to enjoy a seaside view. With the skyline in the background, others said they felt like millionaires living in their sea-view apartments for a moment. Forklift drivers out at sea joked about sailing across the ocean on a 100,000-ton oil tanker. Other employees suggested to use the ‹sea› as a natural swimming pool. Inspired by the spirit of the 2012 London Olympic Games, they joked about trying the four swim strokes, or holding a small swim competition. Gurit employees in Tianjin accepted the heavy rain with a positive attitude just like the Chinese saying that goes, you will never see the rainbow without the rain and wind.

GURIT'S CORPORATE WEBSITE IN GERMAN

In a truly global organization like Gurit, English is today the dominant business language. Yet, as a group, Gurit is legally domiciled in the German-speaking part of Switzerland. What is more, a large portion of its retail shareholders are Swiss. While the investor relation section of the Gurit website had always been available in German, we now offer our German-speaking audience all corporate information in their native language. «The German-speaking areas of Europe are important wind energy, transportation and boat-building markets and we want to best cater our services to their needs», said Nick Cross, Website Coordinator at Gurit.

GURIT'S MARINE ACTIVITIES FOR ASIA PACIFIC HAVE RELOCATED

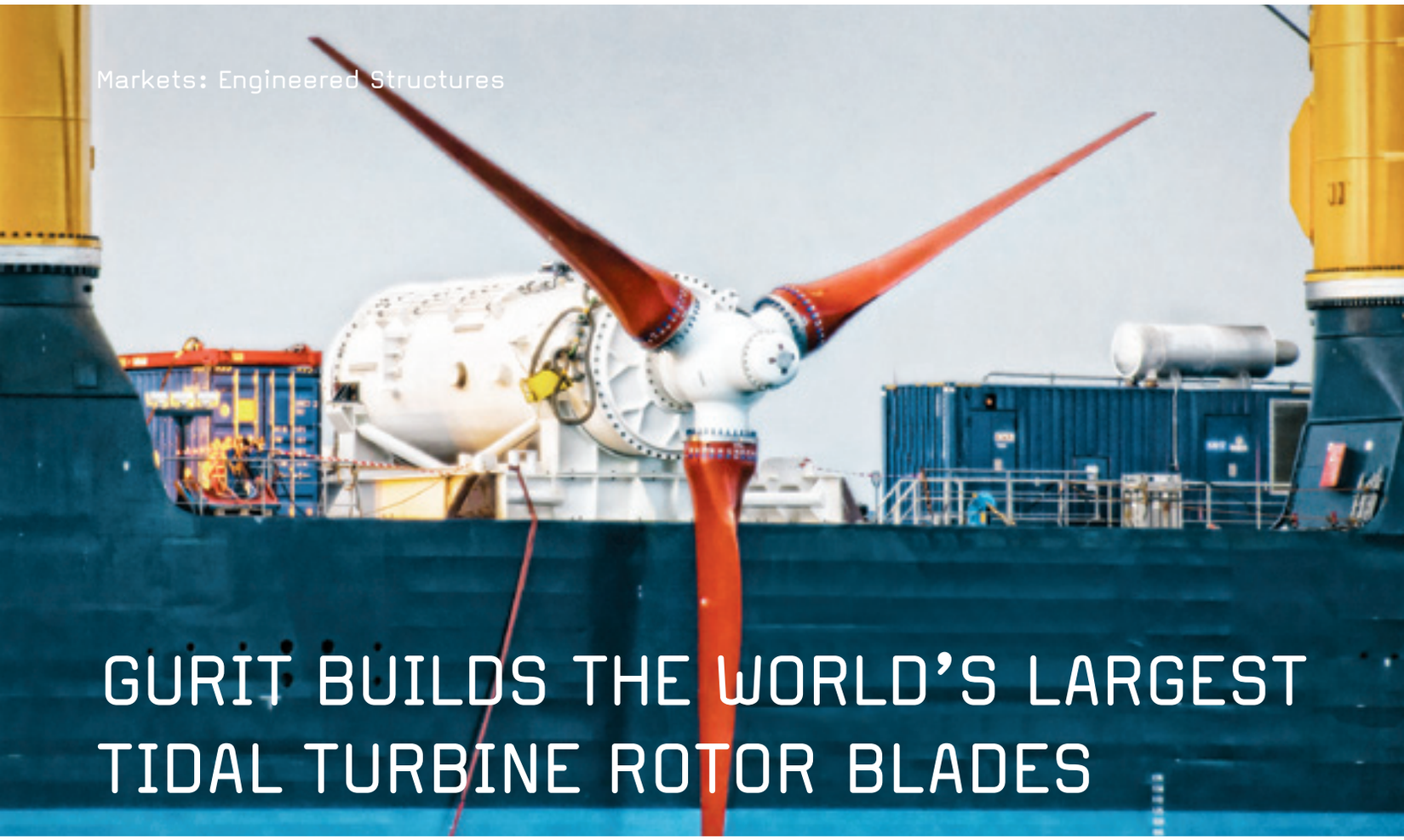
As we go to press, staff at Gurit's Asia Pacific marine head office are settling in to their brand new facilities in Auckland, New Zealand. The modern 1650 m^2 building promises to be a comfortable new home for the southern hemisphere-based structural engineers and B^3 SmartPac designers, administrative and sales staff, and warehouse and production teams. From here, SP-High Modulus, the marine business of Gurit, manages its activities in the Asia Pacific region, with additional sales and technical representatives also working out of Australia and China. «The new building has been designed with our current structure and future growth in mind,» says Paul Goddard, General Manager of Marine at Gurit. «It is all on one level, with unobstructed views between the warehouse/production area and the open plan office space, allowing us to operate more easily as a single, integrated team, and offering improved flow to our business processes.»

The team looks forward to welcoming visitors to its new home at 11 John Glenn Avenue, Rosedale, Auckland 0632, New Zealand.

STRONGER PRESENCE ON THE US WEST COAST

SP-High Modulus has appointed a new North American distributor focusing on the Pacific coast of the USA and Latin America: Revchem Composites has been offering an extensive selection of composite materials, supplies and equipment for over 30 years and will now also distribute the full range of Gurit's SP-High Modulus branded products for the marine market. Revchem has four distribution centres offering next-day delivery throughout both North and Latin America. «We believe this appointment strengthens our distributor network in North America and will enhance the service to customers both technically and commercially», says Mike Seymour, Technical Sales – West Region.

For more information email marine-na@gurit.com
or alternatively go online at www.revchem.com



GURIT BUILDS THE WORLD'S LARGEST TIDAL TURBINE ROTOR BLADES

The ANDRITZ HYDRO Hammerfest (AHH) HS1000 turbine was installed on the Scottish seabed in December 2011, fitted with blades engineered and manufactured by Gurit. Steadily pitched to provide increasing power, the installation reached its full potential in early 2012 and now fulfils the electricity needs of some 500 homes.

The installation of the ANDRITZ HYDRO Hammerfest (AHH) HS 1000 turbine took place in December 2011 during some of the worst weather seen in Scotland in the last decade. But everything worked out fine and proved the accuracy of the robust engineering and attention to detail demanded by AHH. Following an initial commissioning period, the turbine blades were pitched to provide steadily increasing power until the full tidal power generation potential was reached early in 2012. The single turbine is now delivering power to homes on the Island of Eday, one of the northern islands in Orkney, and is capable of fulfilling the annual electricity needs of 500 homes.

TECHNICAL CHALLENGES

With a rated capacity of 1MW and a diameter of over 20 m the HS1000 is the largest single rotor to be installed to date. The 9 m blades were engineered and manufactured using Gurit materials by a team at Gurit (UK) over a period of around 16 months and required the development of new methods for analysing and manufacturing such a highly loaded structure. The materials used were predominantly from Gurit's wind energy range including SparPreg™ and SPRINT® but the high degree of curvature combined with significant laminate thicknesses required the development of new processing and manufacturing techniques to create a finished product with the level of quality required to maintain the high performance for a design life of 25 years. Indeed the design process included a material test programme of over 1000 individual coupons to ensure that the materials properties in both dry and seawater saturated conditions were well understood in order to provide confidence in the blade integrity even after long-term immersion in this aggressive environment.

REFINED STRUCTURE

Gurit worked closely with the customer, ANDRITZ HYDRO Hammerfest, and their chosen partners to ensure that the loadcases and interface requirements were accurately assessed and also to refine the blade geometry, particularly in the root area to provide the best hydrodynamic performance available while meeting the load bearing requirements of the structure. The resulting geometry and construction methodology ensured that a conventional wind blade concept was not up to the task of withstanding some of the most aggressive tidal streams in the world and a number of novel features were included in the final design.

HIGH QUALITY MANUFACTURING

The four blades, three for operation on the turbine and one for full scale testing, were manufactured in the existing prototyping facility at Gurit (UK). Given the tight manufacturing timescale and the short production run the moulds and assembly jigs were sourced locally and the project saw the facility running at maximum capacity for a significant period of time. The high laminate thicknesses and slender blade geometry ensured that the individual structural components were densely packed with materials. The complex geometry and the tight schedule placed a high level of focus on achieving the required high quality levels first time, every time. This focus and the subsequent non-destructive testing resulted in the manufacture of the blades without the loss of a single significant sub-component, an achievement that is something to be proud of considering the unique manufacturing processes.

FEEDBACK AND VERIFICATION

Each of the blades was manufactured with integral fibre optic instrumentation to allow AHH to monitor the performance and condition of the blades throughout their lives. This instrumentation is now confirming the predicted performance of the structure and providing valuable real time data that will be used by AHH to check and confirm the design input data and by Gurit to verify the accuracy of the structural analysis. The result of this verification is that the next project can be carried out with an even higher level of confidence.

SCALING UP

This project has allowed Gurit to demonstrate its capabilities of structural design and blade manufacture. The same turbine technology is now being used by AHH to develop what is expected to be the world's first tidal turbine array located in the Sound of Islay, again in Scottish waters. This 10 MW array has achieved planning consent, and project design and development is now underway demonstrating the rapid growth of this emerging industry. Based on the experience gained from the design and manufacture of the HS1000 blades Gurit has been working on an internally funded project to develop a blade design that can optimise the hydrodynamic performance of the blade whilst also reducing the cost. Gurit is now in an excellent position to compete for new AHH projects and other ocean energy blade supply contracts and has begun the journey to create a blade manufacturing business within the Engineered Structures business unit.

CATCHING THE BUS

During 2008, the newly elected Mayor of London, Boris Johnson, announced he would phase out the controversial «bendy-buses» and introduce a new double-decker bus for London (NBfL). The modern fuel-efficient bus would draw on styling cues from the iconic star of London transport, the 1960's built Routemaster. Northern Ireland-based manufacturer Wrightbus, were selected to build the new bus, with design input by London-based Heatherwick Studios. The freeform nature of the styling, and the technical requirements of the bus, including hybrid powertrain and aggressive fuel efficiency requirement, meant lightweight composites were ideal for the structurally-loaded rear-end body panels. Through the Engineered Structures Business Unit, Gurit specified SPRINT® ST70FR to meet the fire retardant requirements and worked closely with Wrightbus ensuring the structural design, attachments, and assembly methods met with the Wrightbus performance requirements. Nine prototype sets of components were supplied during late 2011 and early 2012 to show proof of concept.

Lead Structural Engineer at Wrightbus, Noel Graham said of the project – «Working on a high profile project such as NBfL and embracing many technologies new to the bus industry such as composite materials taking a leading role in the primary vehicle structure, it was important for Wrightbus to establish close links with a well-established company who have comprehensive knowledge of their product. From a personal point of view, working on the structural performance and longevity of the rear end of the bus, including the rear platform, I found my Gurit ‹colleagues› to be professional, knowledgeable and friendly to work with.»

Eight prototypes are now serving the busy route 38 in London and following the re-election of Boris Johnson in May 2012, who promised as part of his election manifesto to have 600 New Buses for London in service by May 2016, Transport for London is in negotiations with Wrightbus on full production. The Engineered Structures team are now working to meet the challenge of transitioning from prototyping to production.

A BLEND OF GURIT'S KNOW-HOW WITH ITALIAN ELEGANCE

Comar Yachts has made a name for itself by designing and building performance yachts that are at the same time practical, and which can be used for everyday cruising. With its Comet 100 Raised Saloon, the Italian boat builder has now produced a first and much acclaimed Maxi Yacht, featuring Gurit materials.

Comar put together a team of specialists to create both its newly raised saloon Maxi Coment 100 rs and the follow-up 85 rs project. Comar's composites expert Antonio Latini and structural designer Giulio Ricci were joined by designers Andrea Vallicelli and Alessandro Nazareth of A. Vallincelli & Co. to bring the project to life. Gurit's Italian distributor Resintex also joined the team and supplied SP-High Modulus materials for the build.

FAST AND COMFORTABLE

The lines of the hull and deck are designed like those of a fast cruiser. The yacht has limited displacement but ample interior space thanks to its raised saloon. The design is optimised to offer maximum comfort even when racing. The Comet 100 rs shares the same waterlines that had been developed for the previous Comet 62rs and Comet 52 rs. It features a performance hull with the polished elegance of the deck saloon and slender eagle-eye windows. There are two cockpits on the stern, divided by a large sun deck: the first for manoeuvring and the second for guests. A creative solution was also found for the tender, housed in a dedicated dinghy garage in the stern. The four metre tender with its outboard engine is quickly launched thanks to a clever mechanism. The Comet 100 rs features a drop keel with a maximum draft of 4.8 metres and a minimum of 2.7 metres enabling the yacht to access shallow moorings. The keel can be raised or lowered quickly allowing the owner to use the yacht in a variety of situations.

STRONG AND LIGHT

The hull structure is a carbon sandwich with a **Core**cell™ M-Foam core. Gurit's M-Foam was chosen as it provides a combination of high mechanical and thermal performance. The structure was laminated using SP-High Modulus' Ampreg 21 laminating system. Ampreg 21 is the latest generation of laminating systems from SP-High Modulus and its low initial mixed viscosity makes it ideal for wetting out heavyweight fibres and fabrics. The combination of Ampreg 21 and M-Foam makes the structure strong and light. Through our Italian distributor Resintex based in Frosinone, Gurit supplied a number of additional SP-High Modulus products. A broad range of adhesives were used with the fibreglass laminates. These included Spabond 368, Spabond 340 (for hulls and large structures), Spabond 5-minute (small jobs), Spabond 340 LV (use on uneven surfaces) and Spabond 370 (ideal for bonding teak decks).

The yacht was launched to great acclaim at the Genova Boat Show. Laura Fabi from Resintex commented: «We are pleased to have been able to supply SP-High Modulus composite materials to this new Comar yacht. The finished yacht is very elegant and we look forward to working with Comar on their future projects».

A FIRST MARINE DESIGNER WORK-SHOP IN ITALY

In late June, SP-High Modulus, the marine business of Gurit, held its first marine designer workshop in Forlì, the capital city of the Forlì-Cesena province in the North-Italian region of Emilia-Romagna. The event brought together 37 composite designers and engineers from all over Italy for a full day of presentations and discussion. «Our goal was to look at the latest developments in marine composite structures. With many of the world's most prestigious boats being built in Italy, we also want to make our extensive engineering and materials expertise more broadly available to this market», explains Ferdinando Ollino, SP-High Modulus sales manager in Italy.

The free-to-attend workshop featured a number of presentations from key representatives in the Italian marine composite market. In their lectures, Marco Arcuri from Arcuri Management, Sebastiano Morassutti from Trimarine and Andrea Giovani from Noor and Partners covered topics such as material assisted excellence in project management, constructing high-performance composite yachts, recent trends in composite design and construction.

Members of SP-High Modulus' marine composite team presented their latest materials concepts and engineering services and led the vivid discussion sessions. Ferdinando who organised and ran the event commented: «This is the first of what we hope will be a regular series of events in the Italian marine composite calendar. The workshop was well received with many attendees commenting on how useful the event was, both as a forum to share knowledge and as a networking event.»

RE-INVENTING OUR COMPANY AS A SYSTEM SUPPLIER

Gurit has changed distinctively over the past five years. Our focus today is increasingly oriented towards the market opportunities as a system supplier. SHAPE spoke with CEO Rudolf Hadorn about his views and ambitions for the future.

SHAPE: Gurit has changed substantially over the years. What were the key aspects of change for you?

Hadorn: In the course of its corporate history of almost 180 years, Gurit has re-invented itself several times. The current management team thus stands in the tradition of many successful entrepreneurs. Since the year 2000, our emphasis was increasingly on composites and this is now our unique focus. As a rejuvenated company, we are active in several young and dynamic composites target markets. Our market orientation also provides the foundation for our organizational set-up which keeps us focused on our customers' needs. Since 2007, we have put in a lot of effort to create a comprehensive material offering, we have globalized our business to reach all relevant world areas, and professionalized and integrated ourselves further from the incubating acquisitions at the beginning of the century.

Now, we make another step ahead: The goal is further backward and forward integration along the value chains of the markets we operate in. Gurit will evolve further with a dynamic and agile product and market strategy as a mid-sized, global and globally led company. We put customers and their value creation first, live up to our core values, stick to our word with all our partners and stand on solid financial feet, in a good Swiss industry tradition.

Let's take another look at the points you just raised: Tell us more about Gurit's market focus.

In essence, Gurit serves the needs of customers in defined target markets like Wind Energy, Marine, or Aerospace, to name the most important ones. Here, our ambition is to offer as much as possible in terms of an all-encompassing, full-line product and service proposition: Structural engineering, a comprehensive materials product range, tooling, some prototyping, and in select target markets like automotive we have already reached the status of a tier 1 system supplier.

Holding up an ultra-light-weight car fender with just one finger

This makes us pretty unique in the industry. Obviously, we cannot offer the same breadth and depth in every target market – e.g. we don't build wind turbine blades. But we have the ambition to become a true system supplier in some of the markets we currently serve and especially in new emerging ones.

In the composite industry, success requires competence in materials development and production on a global scale, capacity to quickly ramp up and adjust from small quantities to e.g. millions of square metres of prepreg, strong industrial competitiveness, and most importantly a global customer intimacy of sales and technology support so you can assist and at times co-develop new applications with our customers. Competence, capacity, competitiveness and customer intimacy – this is what I refer to as our 4C-approach.

Can you give examples of Gurit's 4C systems supplier approach?

We have the expertise to develop and supply big, light-weight advanced composite structures – wherever they may apply. Our current target markets are just a start, a set of examples. Much more is possible. With the formation of Engineered Structures, we now have a group of people within the company who focus on such new developments. So far we have reached a system supplier status in automotive for ultra-high-end body panels. They are super light-weight carbon composite parts, offer class-A surface, are compatible to pass high-temperature, in-line paint shops and offer designers at our customers' high degrees of freedom in shaping the body panels of these wonderful cars. Another example is our B^3 SmartPac application: Here we design, cut, label and pack all needed materials to build a boat or any other composite structure – very much like a piece of furniture you put together yourself. Other examples are the blades of a first tidal turbine we developed last year or large components for buses.

How does this change reflect internally? Does Gurit have back or forward integration ambitions?

Gurit continues to achieve organic growth based on the platform we have built in our target markets. In addition, we are always looking at acquisitions to extend our position in the relevant value chains.

What are the biggest challenges for Gurit?

Gurit achieves about 70 % of sales in Wind Energy – a market that is challenged by a lack of clarity over feed-in tariffs and subsidies, grid access bottlenecks, the current availability of cheap gas leading to volatile demands and industry consolidation until the market takes off for further prosperous growth. It is a challenging task to keep Gurit growing and commercially fit in such an environment. But we are confident we can rise to these challenges. Other than that, we are busy building new businesses as already mentioned.

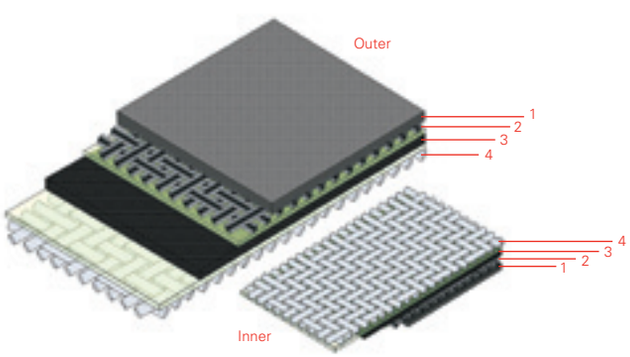
What is your biggest ambition for Gurit?

Gurit needs to maintain a solid sales growth momentum and maintain a healthy profitability in a challenging business environment in the coming one to two years, especially in the Wind Energy sector. Furthermore, we need to develop new markets by converting applications which are made from metal today to composites and we need to expand our capabilities as a system supplier for whatever composite applications. Last but not least, our ambition is to remain effective and competitive in all we do, so that our customers have a competitive advantage being served by Gurit.

TAKING AUTOMOTIVE PARTS PRODUCTION TO THE NEXT LEVEL

Gurit has made a name for itself developing and producing advanced carbon fibre body panels for the automotive sector with its patented SPRINT® CBS™ system. This materials technology delivers the best in class carbon fibre composite body panel system featuring an A-class surface finish and lightest possible panel weight. With the continued desire for excellence and innovation, Gurit has been looking to improve upon its current automotive body panel production process to make it more viable for volume production.

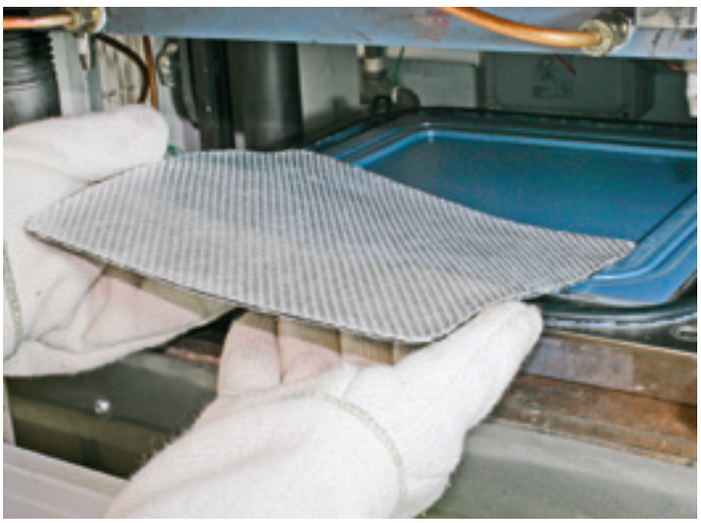
SPRINT® CBS has established itself as a parts production technology for premium vehicles by providing high-performance, lightweight parts at reduced tooling costs. Martin Starkey, Managing Director of Gurit Automotive explains: «To produce a complete car bonnet, we first mould an inner and an outer composite part which we then bond together using a tightly controlled bonding jig. To manufacture the composite parts we currently use our patented SPRINT® CBS prepreg material and a vacuum bag process.» The finished parts feature a syntactic lightweight resin core which is on the one hand flexible enough to conform to the mould and on the other stiff enough to space out the structural fibre laminates to provide the panel rigidity and strength. A surface film layer provides a buffer between the final painted surface and the structural fibres and ensures a stable, print free surface. «In order to take automotive parts production to a next level which includes the ability to manufacture parts for large production run vehicles, we wanted to be able use the same level of material performance while reducing cost, and increasing our manufacturing capacity», Martin added.



SPRINT® CBS Material
Main Laminate: SPRINT® CBS (Car Body Sheet)
1. Surface Film
2. Woven Carbon Single Sided SPRINT®
3. Syntactic Lightweight Core
4. Woven glass Single Sided SPRINT®

REDUCED CYCLE TIMES AND HIGHER TEMPERATURE RESISTANCE

As the result of extensive in-house research, Gurit has now developed a press process to reduce the labour and time needed to make high-performance composite panels. With a curing time of just 10 minutes, the refined process allows for the manufacture up to 40,000 parts per year from a single tool set. «At this production volume a higher level of material performance is required to access new market niches leading to the development of CBS 200™ – a new product which is thermally stable to over 200 °C», says Damian Bannister, Director Innovation Products and Solutions. «The new product uses a similar laminate structure as the current product to reduce the panel weight with higher temperature resistance enabling the panels to go down a high temperature paint-line at an OEM. The new composite parts are therefore fully compatible with existing mass production painting and assembly methods.» CBS™ 200 takes automotive parts production to the next level. «In developing the system, we focused on the complete process. To simplify tooling, we formulated a material that allows the tools to stay a constant moulding temperature of 200 °C», comments Dan Jones of Gurit's Research & Technology group. «By running at a constant temperature we can avoid the complex heating and cooling systems needed for some moulding processes. The 200 °C moulding and

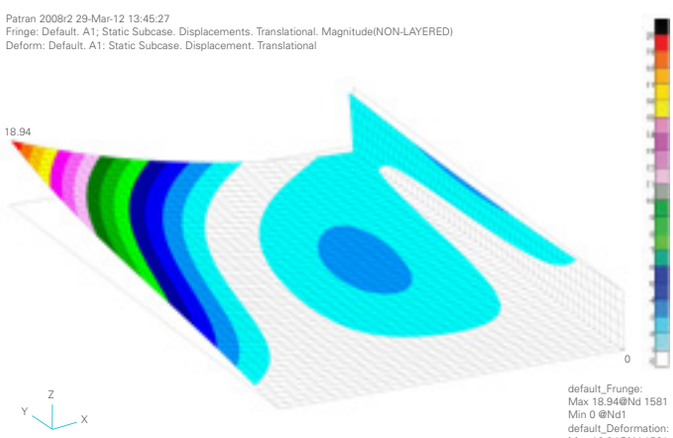


Loading SPRINT® CBS into test plate tool

Gurit Automotive Facility - Assembly Station

subsequent painting process gives us an extra challenge as we need to maintain a stable surface over a wider temperature differential. To achieve this we redesigned the CBS laminate for greater stability and formulated the materials to control the wet-out of the reinforcements, exotherm release, and yet still achieve a ten minute cycle time.»

Working with Gurit's engineering team, finite element analysis was used to investigate the laminate's response to temperature. A particular problem tackled was the incorporation of return flanges as any distortion or variation in geometry cannot be accommodated by the subsequent panel bonding process due to the more rigid panel shape. Dan Jones explains more: «Carbon fibre, glass fibre and resin, all have different coefficients of expansion. If a laminate is not well-balanced, the different expansion coefficients can lead to unwanted twisting. Thin panels with return flanges have more natural rigidity. If the panel is distorted after cooling from the hot mould then it can't be forced back into position without stressing the material and causing distortion elsewhere in the panel. Similarly during the painting process, or when in-service and the temperature changes, the panel can want to distort again. To reduce the problem the return details can be made separately and bonded in place but problems still remain if high temperature painting capability is required. Without the thermal balance and stability the distortion can return and damage the final part finish. We wanted to be able to mould-in more features into the panels in the press process to eliminate later assembly processes.» Thanks to Gurit's materials' know how and engineering expertise, the optimised CBS200™ laminate has no tendency to twist, offers increased stability and allows to mould-in additional features. What is more – additional weight-savings could be achieved by optimising the laminate design and material formulation.



FEA of Unbalanced flanged plate showing displaced shape at temperature

The technology does not just rely on new material formulation as there are also many process details that need to be optimised to realise the lowest cost body panel. «We have looked at how to improve the seal design and how to best deal with resin flash. Currently we are working to optimise the material format to reduce the amount of preforming required to mould complex parts and deliver a net moulded part to reduce the amount of trimming needed in our body panels», Martin Starkey added. To do this, Gurit has invested in new press and matched metal tooling to enable the R&D engineers to develop and test new materials optimised for low labour content manufacture. Dan Jones comments: «Having the press moulding facility next to our resin formulation teams greatly helps our development. We are able to make adjustments to our products to both change the process and the material to get higher performance and more process tolerance for manufacture.»

GURIT COMPOSITES FOR LEADING-EDGE MILKING STATIONS

An innovative New Zealand company has embraced Gurit's technology to manufacture what it claims is the world's first composite rotary platform for the milking industry. By replacing traditional concrete elements of the platforms with composites, the weight of a 54 bail milking platform is reduced by a massive 80 %!

Waikato Milking Systems, with headquarters in Hamilton, New Zealand, has been providing the dairy industry with milking equipment and technology for over 30 years. Although the company has a 62 % share of a burgeoning domestic market, with New Zealand the world's biggest exporter of cow's milk, it has recognised that its future growth will come from exporting its technology and equipment, and that it has to find ways of differentiating its offering from others on the global market.

One of the company's divisions, Rotary Platforms NZ Ltd, a manufacturer of rotary platforms, has designed and developed what it claims to be the world's first composite rotary platform for the dairy industry. Branded Centrus, the first composite platform was manufactured in 2009 and since then 24 composite platforms have been installed at customer sites.

Composite materials provide a solution for the deck sections that is lighter, and indeed stronger, than the alternative concrete platforms. By replacing the concrete elements of the platforms with composites, the weight of a 54 bail platform is reduced by a massive 80 %! However, the new design will still sustain rigorous use by 54 cows when fully loaded – a total of around 32.4 tonnes! The lighter weight platform also means there is less friction on the drives and running gear, resulting in reduced wear and tear. And the composite materials offer reduced ongoing maintenance as the deck is not corroded by the cleaning chemicals or the cows' urine.

The deck sections are constructed of a sandwich laminate, comprising a foam core, double bias and quadriaxial E-glass fabrics, reinforced with a high strength hybrid aramid/glass woven cloth, and laminated using a resin infusion process. Recyclability of infrastructure is likely to become a major driver in the dairy sector, so Rotary Platforms were pleased to adopt G-PET, Gurit's recyclable structural foam core, with excellent

mechanical properties and compatible with all types of composite processing.

Gurit supplies its composite materials in a B³ SmartPac format, so each layer of material is CNC-machine cut to the exact shape and size required for the build, clearly labelled and packed in the order to be used. «We decided to use the B³ SmartPac as it eliminated the need for time consuming hand cutting at our own manufacturing facility,» says Josh Janmaat, Composite Division Manager at Rotary Platforms. «The SmartPac design and cutting process is very accurate compared with hand cutting, which allows us to apply more stringent quality controls to the finished product. A huge benefit to our customers.» The SmartPacs are provided with step by step construction guides to save time in the manufacturing process, ensure repeatability and allow efficient training of new staff.

As demand for environmentally-friendly, advanced technology solutions increases within the global dairy industry, and as the composite platform continues to prove a success, Waikato Milking Systems plans to export its innovation, with Australia and the UK firmly in its sights.

TALKING STATISTICS – SIGNS OF A YOUNG ORGANIZATION

Looking at the diversity of Gurit as a global organisation, let us now focus on the age group of 20 to 30, as 37 % of our staff fall into this category. Please meet Dave, Wu and Shi Xin. We asked them what they think of Gurit, why they have chosen to work for us and what their hopes for the future are.

Dave Laprise is a Process Engineer working at our factory in Magog, Canada. Dave has been with us for six months after finishing his baccalaureate in mechanical engineering at the University of Sherbrooke. During this programme he did a number of internships – the last being in the **Core**cell™ Plant in Magog. Dave comments that he was attracted to Gurit as «our composite materials are impressive and I wanted a chance to understand them better. Composite materials have many uses and represent the future, I like the idea of being part of the team that produces them.»

Across the globe in Qingdao, China, Wu Junpeng joined us about two months ago as a Production Operator. He is currently working hard to master the nine operation skills including mixing, press and expansion. He hopes to learn quickly and then develop his team-working and management skills as his aim is to be a team leader within two years. Wu says that two things particularly attracted him to Gurit, the focus on people and the attention to health & safety. He comments: «the corporate culture of people orientation and the attention to safety attracted me deeply. At China Techno Foam a safety improvement board has been set up to give employees the opportunity to make suggestions. I also find that the HR department is willing to talk to and listen to employees – this tells me that Gurit pays attention to staff.»

Linda Tillson, Head of Corporate HR summarises: «I hear many examples across the organisation of how much time and support we give to helping to develop school leavers and students, this is vitally important as they will make up our future workforce.»

One example is Shi Xin Tian who is currently studying finance at Tianjin University of Finance and Economics. Recently she was given the opportunity to work with Tianjin's finance team for two months: «In those two months, all of the team in the finance department taught me the detail of their daily work, patiently helped me solve problems and instructed me how to operate. Meanwhile, colleagues from the other departments were also very considerate and helped me well. I was fully integrated into this warm team. Moreover, I made friends with many colleagues in the process.» Shi Xin Tian is also keen to confirm that, «all of the knowledge and experience that I've acquired at Gurit is helpful for me in the future. Thanks again everyone who helped and encouraged me, I hope I will have the opportunity to meet with you in Gurit, work together and grow together.»

VANQUISH – ASTON MARTIN'S NEW HERO

Unmistakably an Aston Martin, the design of Vanquish shows a clear and coherent lineage from its heritage while providing an equally clear pointer to the luxury car brand's vibrant future.

Vanquish has amplified gestures – in the form of bonnet vents, side strakes and a sculpted roof – that accentuate the car's extra performance and edgier character. The car has a more assertive stance, yet is not overtly aggressive. Closer inspection of Aston Martin's new Hero – the Vanquish – reveals details such as a stunning new Aero Duct on the rear boot lid. This elegantly devised passive engineering feature, which counteracts lift at the car's rear when travelling at speed, is a triumph of both design and technical ability.

The latest engineering methods, innovative technologies and typically understated classic British design come together to make the muscular new Vanquish a true super GT. For instance, each body panel on the car is constructed from carbon fibre because of its high strength-to-weight ratio and flexibility of form. This not only reduces mass but means that fewer individual body panels are required. For instance, the panel gap on the C-pillar joint is no longer necessary. Meanwhile torsional rigidity is improved by more than 25%. Gurit Automotive is proud to work with Aston Martin, supplying the body panels of this new exciting model.

Aston Martin Chief Executive Officer, Dr. Ulrich Bez said: «Today's Vanquish is the ultimate expression of Aston Martin design ethos, engineering innovation and technical ability. It offers luxurious, continent-crossing capability and pure driving excitement without compromise.» The design represents the latest take on Aston Martin's iconic visual language. Vanquish unquestionably sees the brand continue its enviable tradition of producing some of the most beautiful sports cars in the world. Styling cues such as the elegant new waist, elongated side strakes and LED rear light blades are derived from the One-77 supercar. Dr. Ulrich Bez added: «It is the ultimate Super Grand Tourer – confident and assured – and is the newest representation of Power, Beauty and Soul.»

Powered by a significantly revised naturally aspirated 6.0-litre V12 petrol engine mated to the proven Touchtronic 2 six-speed automatic gearbox, the new car offers suitably impressive performance figures. The V12's power peak of 565 bhp (573 PS) makes it Aston Martin's most potent production model yet, outmuscled only by the strictly limited edition GBP 1.2 m One-77 supercar.

Practical improvements such as a newly designed and significantly more spacious cabin and a boot that, at 368 litres, is more than 60% larger than that of the DBS, ensure the new Vanquish can carry sufficient luggage for even the most ambitious grand tourist.

HOW TO BEST LINK AN ORGANIZATION TO EXISTING AND NEW MARKET NEEDS

Gurit chairman Peter Leupp believes in the creativity of people. It is people who fill an organization with life. They turn inventions into innovations that make a real difference in the market place.

SHAPE: Mr. Leupp, what is your main ambition as Gurit's new chairman?

Leupp: If we look at where Gurit comes from, where it stands today as an organization, I believe a top priority is to continue to facilitate profitable organic growth that is firmly rooted on the platform we have built over the last years and to extend that platform where appropriate. We will therefore continue to do our best to serve our traditional markets – but we also want to look beyond those activities. We are excellently positioned to convert a rising number of industries from traditional materials – all with their specific limitations – to the freedom of design of advanced composites.

That's the main task of the newly formed Engineered Structures unit, isn't it?

It is – but not exclusively theirs. We have various cross group functions which facilitate and incentivize Gurit to explore new options. Engineered Structures is a key instrument to bring our expertise into new markets. But at the end of the day, it is each and everyone's interest to do so. While we focus on defined target markets, we all need to constantly think about new clever applications that can really set our current and potential customers apart and offer new growth opportunities for our engineering and materials business. Success needs clever ideas and inventions – a technological push. But even more so, it needs a pull from the market. Inventions become innovations when people link them to market needs.

What markets do you think about?

While our traditional target markets such as Wind Energy, Transportation and Marine, offer additional growth potential as advanced composites penetrate these industry more, we should not limit ourselves to these industries. Gurit brings together an unparalleled wealth of advanced composite know how. To leverage this know-how to its full potential, everyone at Gurit needs to constantly keep his or her eyes and ears open for interesting new applications. They may well lie beyond the familiar target market areas. I strongly believe in interaction. While Gurit is a global organisation, we are small

PETER LEUPP – NEW CHAIRMAN OF GURIT

Dr. Paul Hälg decided not to stand for re-election at this year's Annual General Meeting (AGM), after his nomination to become chairman of Swiss building materials company SIKA. Dr. Hälg has served on Gurit's Board since 2001 and became its Chairman in 2004. His association with our group goes back to 1986 when he joined Gurit-Essex, a joint-venture company then focusing on bonding and damping systems for the European automotive industry. At his last AGM Paul Hälg said he will stay connected with Gurit as a shareholder in the coming years. The AGM elected Peter Pauli, CEO and chairman of Meyer Burger Technology, as a new member of the Board of Directors.

Peter Leupp, Board member since the AGM 2010, is now Chairman of Gurit. Mr. Leupp has served ABB in various functions since he joined that group in 1977. Since 2007 he has been head of the Power Systems division of ABB Ltd., Switzerland, and is in this function member of ABB Ltd.'s group executive committee. Having served as region manager North Asia from 2005 to 2006, and country manager in China from 2001 to 2006, Mr. Leupp has broad international experience, especially in China, and extensive knowledge of the energy business.

enough to maintain personal relationships with many colleagues across our markets and functions. I encourage all colleagues to engage in discussions about their key customers' needs or new potential usages for our materials with different colleagues from within the organization. Interaction is essential for creativity. Looking beyond the traditional boundaries of our jobs can be so enriching and stimulating.

Do you have a specific talent management system in mind?

Talent management often evokes the notion of a program catering for young and promising colleagues. At Gurit, we understand this in a more comprehensive way, encompassing everyone in the organization. I would like Gurit to provide an exciting platform for everyone to best develop his or her skills to our mutual benefit. We all share the same interest of having successful customers, best-in-class products and world-leading engineering services. And that's not limited to the market area a specific employee works for, of course.

How can an organisation go beyond its boundaries?

One important key for that is interaction at all levels. The Board of Directors, the Executive Management team and additional Managers have recently met for their annual management meeting. Many of the participants pointed out the importance of communication within their own business unit, but even more so also across Gurit as a whole. As mentioned before, cross group functions, occasional face-to-face meetings of managers who do not necessarily have every day contacts, maybe internal technology or customer focus days may facilitate this. In that respect communication is obviously a management task. But I strongly believe it is also a continuous personal assignment. When we approach a new task, a new project we should always ask ourselves who in the Gurit universe could make valuable contributions here. And today, people are only a call or an email message away.

> While we focus on defined target markets, we all need to constantly think about new clever applications that can set our current and potential customers apart and offer new growth opportunities.

What about external channels?

Yes, so far we talked about internal communication. Externally, the biggest challenge for a materials specialist like Gurit is how to reach the decision makers in those areas where advanced composites have not yet established themselves as materials for choice. Regular contacts with engineering schools, prestigious case studies like the ones presented in SHAPE, actively approaching special interest publications and discussion forums in industries which so far use traditional materials such as metal or concrete may prove to be ways to create new interest in advanced composites. When you start talking about the unique features of engineered materials such as our composites, one is almost certain to get any designer's or engineer's attention.

SOUTH EAST ASIA – A RAPIDLY EMERGING COMPOSITE MARKET

Composites are fast becoming materials of choice in a growing range of applications. While Gurit traditionally serves industry-specific customers in rather defined target markets such as wind energy, transportation and marine, we are also eager to combine specific know-how from various internal sources to best serve our clients' needs. In South-East Asia, a cross-market technical sales team is fast building up interesting contacts in a growing composite industry.

Different industries have different material needs: Gurit's aerospace materials comply with the highest fire, smoke and toxicity requirements; marine materials are often engineered for utmost performance or for maximum production efficiency. Gurit's specialists team up in R&D, engineering, sales and customer support to provide customers with the best conceivable solution – whatever their materials requirement, target market or project specific challenge.

GURIT'S COMPREHENSIVE EXPERTISE ...

Matthias Hucke of Gurit Transportation was looking into the market opportunities for lightweight components for rail cars in Asia. «Through our marine team, I discovered that DK Composites, located in Melaka, Malaysia, was active in this market. DK has years of experience manufacturing with composite materials, and we work closely with them on projects in the marine and construction sectors. So for me to explore this opportunity further, it was logical for me to team up with our structural engineers and marine technical sales personnel in the UK and Asia Pacific, all of whom collaborate with DK» he recalls. What followed were very interesting talks with DK's management showing great mutual opportunities. «Knowing Gurit and SP High-Modulus as a marine and civil engineering materials and engineering brand, rapidly got us interested in learning more about their material offering for the growing rolling stock market», says Habibur Rhaman Ibrahim, Executive Director of DK Composites.

... PUT AT CUSTOMERS' DISPOSAL.

Familiar with the advantages of light-weight engineered composites for large structures such as yachts and large architectural features including magnificently wide-spanning domes, DK was eager to learn about Gurit's transportation range of materials. «Offering materials that comply with the most stringent aerospace fire, smoke and toxicity requirements and allowing for weight savings of over 50 % in comparison with conventionally designed parts and the chances to exchange ideas and discuss with Gurit Engineers got our technical people excited», Habibur added.

DK RECEIVES JEC COMPOSITES ASIA AWARD

Tony Stanton, Engineering Manager at SP-High Modulus, New Zealand, who had joined Matthias Hucke on visits to DK and also focuses on the rapidly growing South East Asian market, was delighted to see DK Composites receive an award at this year's JEC Composites Asia for its work on Composite Monorail components: «The composite structural engineering, which had to meet stringent fire safety requirements, was carried out by the SP-High Modulus New Zealand team, with finite element analysis support from the UK. Interestingly, Gurit materials produced in Kassel are used for the interiors of these trains. Congratulations to the team at DK Composites!»

FOCUS ON SOUTH-EAST ASIA

Earlier this year, Gurit and SP-High Modulus exhibited at JEC Asia, held in Singapore. The show targets the Asian composites sector, which show organisers believe could represent 51% of global composite production by 2015. Gurit aimed to build a better knowledge of the Asian market, specifically South East Asia, and to promote its range of products and services to new clients, with particular focus on PVCell® and G-PET core materials.

Staff reported a steady flow of good quality visitors to the stand, and found that the show was an excellent way to connect with key customers in the region about specific projects. The full range of market sectors were present at the show, including aviation, transportation, civil, marine, as well as consumer goods; and representatives from composites associations in China, Korea, Japan and Malaysia discussed emerging technologies and how their composite markets could take advantage of more automated construction processes such as resin transfer moulding.

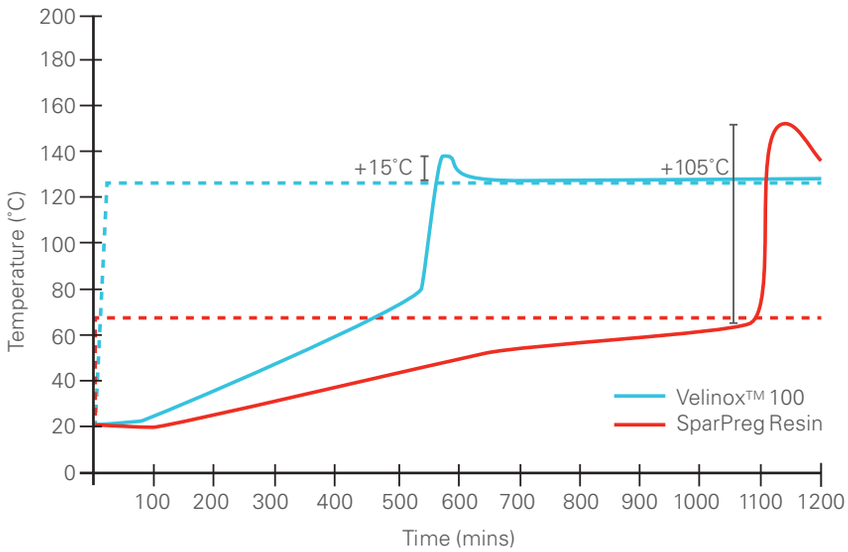
It looks like solid stone. It is solid, but a solid, low-void laminate.

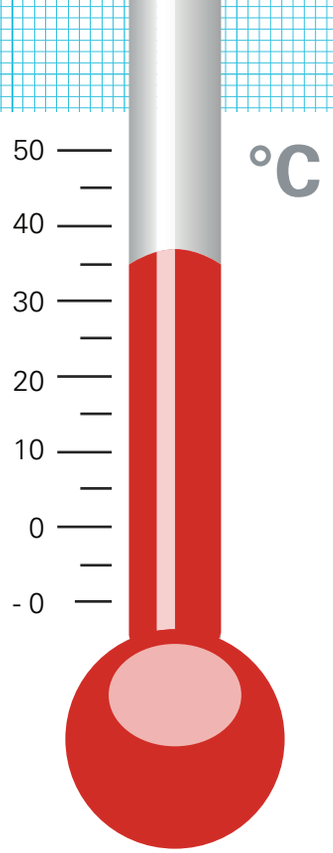
A FRESH LOOK AT PREPREGS

As the design of large multi-megawatt wind turbines progresses, wind turbine blade designers are investigating the benefits of new prepreg materials. Velinox™ Resins and Airstream™ Coating are true game changers and convincing arguments for blade builders to look again at their designs and production processes in a holistic manner.

There are many variables in the complex equation of how to reduce the average price of a turbine blade. Gurit has recently launched two new products which greatly change the calculations of building wind energy turbine blades by using prepreg technology for certain parts. Prepregs have had a reputation of offering superior physical and mechanical properties though generally at a higher price. The new Velinox™ resin family of Gurit now greatly reduces tooling, storage and air-conditioning costs and accelerates production cycles by reducing the required curing times. The Airstream™ coating technology in combination with the unidirectional SparPeg™ prepregs allows for the production of superior thick laminates at unparalleled low void contents of <1.5% at ambient production temperatures ranging from 15–40°C without the need for costly air temperature regulation.

Velinox™ is Gurit's next generation resin platform for wind energy Prepreg and SparPreg™ products. The resin has been designed specifically for the cure of thick sections, such as wind turbine blade spars and roots. This chemistry does not exotherm in the same way as a standard epoxy, enabling the cure profile to be modified to eliminate time-consuming dwell periods that control exotherms in conventional resin systems. The result is a greatly reduced production cycle improving the mould utilisation with the additional benefit of lower wear on moulds due to the lower peak temperature. The Velinox™ 100 system can be cured at temperatures as low as 100°C, but can also be used for rapid manufacturing of components through its 10 minute cure at 130°C and 20 minutes at 120°C even at thicknesses up to 100 mm. Therefore, both thick and thin laminates can be cured quickly which provides the option to specify low or high temperature performance tooling. The figure opposite shows the temperature profile of the centre of two 92 mm glass laminates. In the laminate with the conventional epoxy system (red line), a 70°C dwell was used to minimise the peak exotherm. The Velinox™ system (blue line) does not require a dwell and therefore can be heated directly to the preferred cure temperature (blue dotted line), which in this example is 125°C. A small exotherm is observed with a delta of only 15°C and full cure is achieved in approximately 10 minutes from the peak temperature time.





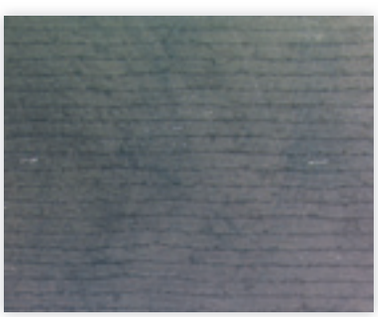
Velinox™ has also been formulated to reduce the shipping and storage costs that have historically been associated with prepreg materials. Velinox™ resin systems have exceptionally good outlife characteristics with a shelf life of over three months when stored at 35°C. This enables the use of prepreg materials in production halls where chilled storage and environmental control are not available and will significantly reduce the cost of use of these advanced materials.

Although Velinox™ 100 is a significant breakthrough in resin technology further development is nearing completion for a lower temperature curing system, Velinox™ 80. This product gives even further benefits in reducing tooling manufacturing costs, lower tooling operating costs and further reductions in component cycle times. Velinox™ 80 will be available from November 2012.

Airstream™ is Gurit's answer to efficiently manufacture high quality thick laminates with unparalleled low void contents at ambient production hall temperatures of up to 35 °C. In combination with Gurit's unidirectional SparPreg™ materials, the Airstream™ coating technology overcomes the generally conflicting material characteristics of low tack (to aid inter-ply breathing) and high drape (conformance to tooling geometry without formation of wrinkles) avoiding any detriment to mechanical performance of the final laminate. The result is a very cost effective user friendly material that eliminates the use of air-conditioned halls using multiple de-bulking steps and/or the use of high pressure autoclaves.

The first important feature of this technology is the increased air permeability between the plies provided by the coating. This is an extremely effective way of removing inter-ply porosity when the vacuum is applied. The resulting laminate has very low void contents (<1.5%) even when production hall temperatures are in excess of 35 °C on sunny summer days. The second feature of the product is the excellent handling characteristics provided by the low tack and high drape it exhibits over a wide temperature range. The coated surface of the prepreg promotes sliding of the prepreg plies during layup and subsequent vacuum consolidation, preventing «stick-slip» and the formation of wrinkles. When you combine the attributes of Airstream™ and Velinox™ technology you have a truly game changing product range that removes many of the barriers to using high performance prepreg materials: excellent handling and application characteristics; fast application and cure times, very low exotherm behaviour; low temperature tooling requirements; no air conditioning requirements; no chilled storage; and very low porosity levels even in very thick laminates (+100 mm).

For more technical details, please consult the specific data sheets available at http://www.gurit.com/prepreg-datasheets.aspx



Low void content of 0.35% achieved with Gurit SparPreg™

QUINTESSENTIAL SAILING

Undoubtedly one of the largest composite cruising catamarans in the world, Q5 – more commonly known as Quintessential – has successfully completed sea trials. The spectacular boat was a long-term project for Gurit's SP-High Modulus team and will be a breath-taking sight wherever spotted.

The 100 ft Q5 catamaran, better know as ‹Quintessential› was built by Yachting Developments in Auckland/New Zealand and launched in 2012. Q5 is one of the largest composite cruising catamarans in the world and was a long term project for SP-High Modulus, the marine business of Gurit. Our New Zealand based team contributed to the successful launch with its engineering expertise and important material shipments for the build.

AS LIGHT AS PRACTICAL

Tony Stanton, Engineering Manager at SP-High Modulus New Zealand, describes some of the engineering challenges the team encountered during this project: «The vessel was designed to Germanischer Lloyd Large Yacht rule and is maintained in full class. The owner had a specific desire to create a sailing catamaran that was as light as practical without resorting to exotic construction – an objective that asked for a lot of engineering.» The desire to reduce weight as much as possible called for a full cored composite solution using e-glass with significant carbon fibre reinforcing. «Finite Element Analysis (FEA) was a quintessential tool during the design process. In particular, FEA was used on the global bulkheads to create a light and stiff platform capable of carrying the immense loads from the rig of this vessel.» To increase efficiency during the build process and facilitate future maintenance, the vessel's structural design features large «soft patches» located on both hulls inside topsides allowing direct engine room access during construction and for long term maintenance.

AS SPACIOUS AS POSSIBLE

Designed by Warwick Yacht Design for spacious indoor and outdoor living, Q5 features an enormous full beam saloon aft of the mast bulkhead. «With the limited space between the head liner and the cabin top, an elaborate arrangement of beams and frames was required», Tony recalls. A typical challenge included the calculations to work around skylights and a large amount of services and equipment concealed behind the head liner. «What really set this saloon

project apart is the 11 m transverse span.» Above the saloon, the fully-enclosed bridge is equipped with state-of-the-art sailing instruments, navigation electronics and communications systems.

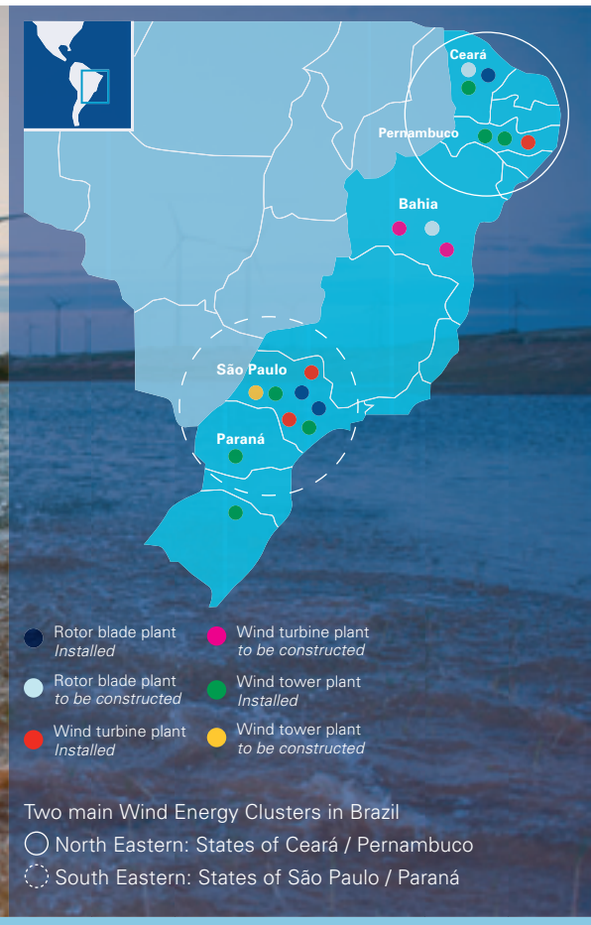
Quintessential offers spacious accommodation with a layout that includes five cabins for 10 guests and quarters for a crew of six. Situated on the main deck forward, the master cabin offers 180-degree views through wraparound windows and private access to the spa pool located just forward.

EXCEEDING EXPECTATIONS

The yacht carrying a host of toys and tenders, including a catamaran sailing dinghy, two tenders, a jet-ski, five mountain bikes, two stand-up paddle boards, scuba gear and two carbon-fibre kayaks, was delivered to her owners only three weeks after launch and made her maiden voyage to Fiji, covering 1300 nautical miles in five days, exceeding her owner's expectations.

FOCUS ON BRAZIL

Gurit has for some time already built up strong customer relations with turbine blade manufacturers in Brazil. Last January saw the setup of our own office.



Two main Wind Energy Clusters in Brazil
◯ North Eastern: States of Ceará / Pernambuco
◌ South Eastern: States of São Paulo / Paraná

Gurit (Brazil) is located in Sorocaba, in the state of São Paolo. Sorocaba was chosen for its proximity to major wind turbine blade manufacturers and Brazil's financial hot spot São Paulo. The new office is also close to important international airports in Brazil and to South America's largest sea port, Santos.

WIND ENERGY LEADS THE WAY...

Brazil is not only the largest country in South America but its overall economy is also growing fast. As is the country's wind energy sector. With almost 600 MW of additional wind energy capacity added in 2011, Brazil accounted for half of the whole wind energy capacity increase in all of Central and South America. In fact, the Global Wind Energy Council believes Brazil to be one of the most promising onshore markets for wind energy for at least the next five years.

...WITH OTHER INDUSTRIES LINED UP

Beyond wind energy, Brazil also offers new business opportunities for Gurit's other areas of expertise: Embraer, the Brazilian aircraft manufacturer, is the world's third most important producer of aircrafts after Boeing and Airbus and the Brazilian automotive industry is ranked fourth globally in terms of numbers of cars built. Additional auto makes are installing factories all over the country. With over 7,000 km of shoreline, Brazil is also home to a marine market that has grown around 10 percent annually since 2005. The majority of the boat-yards are located in the South-Eastern region of the country.

PROMOTING THE GURIT BRAND

Idryan Nangoi, Account Manager South America at Gurit Brasil, runs our office in Sorocaba: « I believe it is important to have a local office in this enormous country. Our local presence will help us to develop the various application markets. One of my main ambitions is to turn the Gurit brand into a well-known source of high-quality advanced composite specialties.» Idryan works closely together with key customer service and quality teams of all major Gurit locations worldwide and draws from his many years of Wind Energy and Tooling experience with Red Maple in China. «The main market for Gurit in Brazil today is clearly wind energy, with blade manufacturers located in the Saõ Paolo area as our main customers. But since the Brazilian wind energy market is developing very fast, the need for additional blade building capacity spurred the creation of new North-eastern Brazilian blade builders», Idryan explains. The Brazilian wind energy industry faces indeed a great challenge, since the Brazilian government has set a target to have some 20 GW of wind power generation installed by the year 2020. «This makes wind power the fastest growing source of electricity in Brazil. Starting from approximately 1.5 GW of installed capacity by the end of 2011, and with some 7 GW in the pipeline by 2016, the Brazilian wind energy market is attracting about 18 billion USD in investment.»

WIND POWER IN BRAZIL

Compared to other BRIC economies like China and India, Brazil has been somewhat slower to embark on a wind energy strategy. But South America's largest country is catching up fast: With over 7,000 km of shoreline, Brazil's wind energy currently is derived exclusively from onshore locations. The windiest areas of the country are in the North East and the South. The wind energy industry is thus mostly also located from São Paolo southwards and then in the North Eastern states. The map above was published in Windpower Monthly in December 2011 and shows the set up of the wind energy industry in Brazil.

RUNNING FOR PARKINSON'S

It was bitterly cold – for Spanish terms – on the morning of April 15. So the 700 people who gathered to participate in Albacete's first «Corre por el Parkinson» were happy to finally get on their marks and GO! After the international success of the first and second «Run for Parkinson's» events held in numerous cities around the world, this global running event was back for the third time: in 2010 around 5,000 people participated in 12 cities and ran some 9,000 km. A year later more than 20,000 runners covered 60,000 km.

This year's objective was sky-high: The goal was to jointly run or walk a total of 384'400 km to represent the distance between earth and moon. Albacete was one of 40 additional cities participating this year for the first time. Albacete's run covered a distance of six km. Despite the cold spell and showers that covered all of Spain that weekend, 30 colleagues from Gurit Spain ran and supported the cause showing that they too are keeping fit. Reaching out for the moon was too high a goal for 2012. Missing the full distance to the moon however reveals the extent of the efforts that remain until a cure for Parkinson's is found. Most importantly, the runs across the globe help raise awareness for Parkinson's disease. We would like to congratulate all runners and supporters for their help and achievement.

WIGHT WHEELS CYCLE CHALLENGE

From June 11 to July 8, various businesses and organisations on the Isle of Wight signed up for the ‹Wight Wheels Challenge› - an initiative to encourage more people to discover, or rediscover the benefits of cycling. As well as the obvious health gains, the scheme also promotes the environmental advantages, highlighting how much CO_2 staff can save by cycling to work.

Gurit (UK) took part in the challenge for the third consecutive year and had the tough target as a company to cycle the equivalent of the distance from Newport to Cairo within a month - a total of 2,089 miles. As an extra incentive, prizes were on offer for regular and new cyclists or those that haven't been on a bicycle within the last year. Every trip of at least one mile was logged and added to the company total. With 10 days of the challenge still remaining, the 40 cyclists from Gurit (UK) easily completed the target distance and went on to amass a grand total of 3,847 miles. This huge effort also meant the team finished first out of 11 companies competing within the category of 350+ staff. We would like to congratulate all who took part this year and hope it has inspired others to get on their bikes for themselves and the environment! View the final results here: http://www.lovetoride.net/isleofwight/event_results

OUR NEXT TRAINING4SUCCESS INITIATIVE

In May 2012, the Executive Management approved the latest «Training4Success» programme initiative: *to focus on the development of our line managers.* Our aim is to develop our managers into leaders by giving them the necessary skills, behaviours and tools to lead and motivate staff, this will help them to make a difference to the future of Gurit. The objective is for every line manager to have a training and development plan in place by the end of Q1 2013. Linda Tillson, Head of UK and Corporate HR at Gurit, will be working with each site over the coming months to ensure that this is achieved. Each *Managers-4Success Training* and Development Plan will contain three elements :

- **Leadership** - Giving you an insight into how to lead staff effectively
- **Knowledge & Skills** - Ensuring that you have a full Managers tool kit
- **Personal Development** - Focusing on your own development

GURIT AGENDA 2012/2013

Gurit will showcase its wide range of material packages, solutions and technologies at a trade show near you.

The Gurit teams look forward to meeting you and introducing you to the latest in advanced composites at the following shows:

2012/2013

» HUSUM Wind Energy, Husum/GER
18 – 22 September 2012, Focus: Wind Energy

» Monaco Yacht Show, Monaco
19 – 22 September 2012, Focus: Marine

» Auckland on the Water Boat Show, Auckland/NZL
27 – 30 September 2012, Focus: Marine

» IBEX, Louisville/USA
2 – 4 October 2012, Focus: Marine

» Composite Europe, Düsseldorf/Germany
9 – 11 October 2012, Focus: Engineered Structures

» China Wind Power, Beijing/China
16 – 18 October 2012, Focus: Wind Energy

» ICOE 2012, Dublin/Ireland
17 – 19 October 2012, Focus: Engineered Structures

» Composites Engineering Show, Birmingham/UK
7 – 8 Nov 2012, Focus: Engineered Structures

» METS, Amsterdam/NLD
13 – 15 Nov 2012, Focus: Marine

» Tidal Energy Summit, London/UK
28 – 29 Nov 2012, Focus: Engineered Structures

» Seatec, Carrara/Italy
6 – 8 Feb 2013, Focus: Marine

» JEC Europe 2013, Paris/France
12 – 14 March 2013, Focus: All

» Aircraft Interiors 2013, Hamburg/GER
9 – 11 April 2013, Focus: Transportation

» Wind Power 2013, Chicago/USA
5 – 8 May 2013, Focus: Wind Energy

Gurit

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